



UNITED STATES PATENT AND TRADEMARK OFFICE

DFW



UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,042	12/11/2003	Markley C. Leavitt	AVI-028	9363
26739 7590 05/14/2008 AVIGENICS, INC. 111 RIVERBEND ROAD ATHENS, GA 30605				
			EXAMINER WILSON, MICHAEL C	
			ART UNIT 1632	PAPER NUMBER
			MAIL DATE 05/14/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/733,042	Applicant(s) LEAVITT ET AL.	
	Examiner Michael C. Wilson	Art Unit 1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7-20-07, 11-9-07&4-7-08.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-9, 23-26, 29-33, 35-39 and 71-77 is/are pending in the application.
- 4a) Of the above claim(s) 76 and 77 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9, 23-26, 29-33, 35-39 and 71-75 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 5, 10-22, 27, 28, 34, 40-70 have been canceled. Claims 71-77 have been added. Claims 1-4, 6-9, 23-26, 29-33, 35-39 and 71-77 are pending.

Applicant's arguments filed 7-20-07 have been fully considered but they are not persuasive.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

Newly submitted claims 76 and 77 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the MAR element between nucleotides 41701-41900 and nucleotides 96401-96800 of SEQID NO: 1 has a different structure and function than the ovalbumin transcriptional regulatory region originally having 95% identity to SEQ ID NO: 1.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 76 and 77 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claims 1-4, 6-9, 23-26, 29-33, 35-39 and 71-75 are under consideration.

Specification

The status of the applications throughout the specification will need to be updated upon being allowed, e.g. pg 43, line 24.

"The present invention provides a novel isolated nucleic acid molecule of approximately 195 kb of the chicken genome, and truncated variants thereof, comprising a region of about 135 kb that is 5' upstream, and an approximately 45 kb region that is 3' downstream, of the ovalbumin-encoding region of the gene locus" (pg 5, lines 5-9).

BAC 120 is nucleotides 1-157354 of SEQ ID NO: 1. BAC 77 is 157355-195102 of SEQ ID NO: 1. The nucleic acid sequence of the chicken genomic region SEQ ID NO: 1 is shown in Fig. 1 (pg 20, lines 13-27). Thus, it appears that SEQ ID NO: 1 encodes BAC vector as well as the entire genomic sequence of the ovalbumin gene and matrix attachment regions.

cDNA encoding an immunoglobulin or luciferase was inserted into ~195 kb ovalbumin BAC (pg 43, lines 12-21; pg 44, lines 7-14).

Claim Rejections - 35 USC § 112

Indefiniteness

Claims 1-4, 6-9, 23-26, 29-33, 35-39 remain and 71-75 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-3 remain indefinite because the structural features that define chicken matrix attachment regions (MAR) vary and are not defined in the specification or known in the art. Pg 3, lines 20, states, "[a]lthough MAR nucleic acid sequences are

conserved, little cross-hybridization is seen, indicating significant overall sequence variation.” In addition, a MAR from one species can interact with other species (lines 22-30). Therefore, it cannot be determined when a sequence is a MAR, specifically a chicken MAR. The specification states individual cis-transcriptional regulatory elements associated with the chicken ovalbumin gene have been isolated together (pg 4, lines 11-13). However, those of skill cannot determine whether fragments known in the art comprised an ovalbumin promoter and a MAR. For example, Woo (1978 cited below) taught 1.8, 2.4 and 9.5 kb fragments of the ovalbumin gene; however, those of skill could not reasonably establish whether the fragments comprise MAR. Accordingly, those of skill could not reasonably know when a sequence comprised a MAR, specifically when an ovalbumin gene fragment comprising the ovalbumin promoter also comprised a chicken MAR as claimed.

Applicants point to the first and second paragraphs of the specification which have nothing to do with MAR. Applicants point to pg 20, lines 29-30: “One MAR element is 5' upstream of the ovalbumin gene between about nucleotide positions 41701 and 41900” and pg 21, lines 2-3: “Another MAR element is between about 96401-96800”. Applicants' argument is not persuasive. Two examples of MAR in SEQ ID NO: 1 is not a definition of MAR.

The metes and bounds of what applicants consider “tissue-specific expression” cannot be determined in claim 31. The phrase does not have an art-accepted meaning and is not defined in the specification.

Applicants argue a Google search shows over one million hits indicating “tissue-specific expression” was well known in the art. Applicants’ argument is not persuasive. Applicants must show the phrase was defined in the art and that the definition was well-known at the time of filing.

The metes and bounds of when a “sequence encodes a polypeptide having a codon optimized for protein expression” in claim 37 cannot be determined. It cannot be determined what is being optimized or what is optimal.

Applicants argue the meaning of codon optimization is well understood. applicants' argument is not persuasive because the argument is unfounded. Those of skill would not be able to determine when a codon was optimized.

The following are new indefiniteness rejections based on the amendment:

Claims 1-4 are indefinite because they do not further limit the nucleic acid sequence of claim 6, which is already has an avian matrix attachment region and ovalbumin transcriptional regulatory region.

Claims 7 and 8 are indefinite because they do not clearly further limit the amount of identity to SEQ ID NO: 1. Claim 7 should further limit “wherein the nucleotide sequence has at least about 99% identity...”. Claim 8 should be “The nucleic acid molecule of claim 6 comprising the nucleotide sequence of SEQ ID NO: 1, or the complement thereof.”

Claim 26 is indefinite because it is unclear how "wherein the nucleic acid molecule is a recombinant nucleic acid molecule" further limits the nucleic acid molecule. SEQ ID NO: 1 is already recombinant.

The phrase "the ovalbumin transcriptional regulatory region" in claims 29-31 lacks antecedent basis in claim 26.

The phrase "an nucleic" in claim 30 should be "a nucleic".

The phrase "the Internal Ribosome Entry Site" in claim 33 lacks antecedent basis.

Claim 35 is indefinite because it is dependent upon claim 34 which has been canceled.

Claim 39 is indefinite because "The recombinant nucleic acid molecule of claim 26 which A nucleic acid molecule" does not make sense. The phrase "comprises a bacterial artificial chromosome" does not make sense; it cannot be determined which element of the claim comprises the BAC.

Claim Rejections - 35 USC § 102

The rejection of claims 1-4, 23, 24, 26-31, 34-37 and 40 under 35 U.S.C. 102(b) as being anticipated by Woo (PNAS, Aug. 1978, Vol. 75, No. 8, pg 3688-3692) has been withdrawn because Woo did not teach a nucleic acid sequence having at least about 95% identity to SEQ ID NO: 1 or the complement thereof.

The rejection of claims 1-4, 23, 24, 26-31, 34-37 and 40 under 35 U.S.C. 102(b) as being anticipated by Woo (Biochem., 1981, Vol. 20, pg 6437-6446) has been

withdrawn because Woo did not teach a nucleic acid sequence having at least about 95% identity to SEQ ID NO: 1 or the complement thereof.

The rejection of claims 1-4, 6, 7, 23, 24, 26, 29-31 and 35-37 under 35 U.S.C. 102(b) as being anticipated by Schreiber (AC159826, submitted 2001) has been withdrawn because the sequence was submitted in 2001 but not published. The sequence was not available to the public or published until it was submitted in 2005.

The 195,102 bp of SEQ ID NO: 1 cannot be reasonably searched because of its large size. Accordingly, searches of fragments of SEQ ID NO: 1 were performed. It is not readily apparent that the art at the time of filing taught a nucleic acid sequence having at least about 95% identity to SEQ ID NO: 1 or the complement thereof as claimed.

Conclusion

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

Art Unit: 1632

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Wilson who can normally be reached at the office on Monday, Tuesday, Thursday and Friday from 9:30 am to 6:00 pm at 571-272-0738.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Peter Paras, can be reached on 571-272-4517.

The official fax number for this Group is (571) 273-8300.

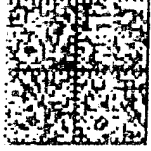
Michael C. Wilson

/Michael C. Wilson/
Patent Examiner

Organization **IC1600** Bldg/Room **REMSSEN**
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
If Undeliverable Return in Ten Days

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

AN EQUAL OPPORTUNITY EMPLOYER



UNITED STATES POSTAGE
\$01.17
JUN 14 2008
MAILED FROM ZIP CODE 22314

